

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Ma, et al.	
Application No.: 10/771,589	Group Art Unit: 1714
Filed: 2/3/2004	Examiner: Peter A. Szekely
Title: Polycarbonate Compositions with Thin-Wall Flame Retardance	Confirmation No: 3810
Attorney Docket No.: GEPL.P-085	

## DECLARATION UNDER RULE 132

The undersigned declare as follows:

1. We are the inventors of the above-captioned application, as an such are familiar with the application, including the claims thereof.
2. To further demonstrate the importance of the combination of materials recited in the claims to achieving the properties of a UL94 V0 rating at a thickness of 0.8 mm, a notched Izod impact strength or of 25 k-cm/cm or greater and a flexural modulus of 29,000 kg/cm<sup>2</sup> or greater, additional tests have been performed. These tests, as described in the Table below, provide four additional comparative examples: Comp Ex 5 which contains no mineral filler but does contain the other components, and Comp Examples 6-8 which make use of a non-phosphate flame retardant, methylphenyl silicone, which is a flame retardant used in compositions in US Patent Publication 2002/0193476, which we understand was cited by the Examiner, together with each of the three recited mineral fillers.
3. In the comparative examples using methyl phenyl silicone as a flame retardant, one additional difference is that these three examples do not include PTFE. PTFE acts in compositions of this type as an anti-drip agent. While this will have had some impact on the

UL94 rating, given the very long burn times of these three examples it would not have improved the rating to V0 as required by the claims.

4. From the examples in the specification and the declaration filed herewith, the following observations can be made:

- (a) addition of a mineral filler to a composition without the PC-siloxane increases flex modulus, but significantly lowers the impact strength. No significant change in flame retardance is observed. (Comp Ex 2-4 versus Comp Ex. 1)
- (b) addition of PC-siloxane to a composition containing mineral filler and phosphate flame retardant increases the flame retardance of a composition and improves the impact strength without degradation of flex modulus. (Ex 1 and 4 vs Comp Ex. 2; Ex 3 vs Comp Ex. 4)
- (b) addition of PC-siloxane without mineral filler does not change the flame retardance, although the impact strength improves. (Comp Ex. 5 vs Comp Ex. 1)
- (d) addition of a different flame retardant does not produce the same increase in flame retardance. (Comp Ex. 6-8).
- (e) the high flex modulus that is achieved in the compositions of the invention is not achieved in compositions that use the methyl phenyl silicone flame retardant. (Ex. 1 vs Comp Ex 6, Ex. 3 vs Comp Ex. 8).

From this, it can be seen that the compositions of the invention provide a desirable combination of flex modulus, impact strength and flame retardance that is a consequence of the combination of recited materials, and which is not achieved using just some of the claimed components.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Oct. 16, 2006

dated

Shiping Ma

Shiping Ma

\_\_\_\_\_

dated

\_\_\_\_\_

Thomas Eberling

\_\_\_\_\_

dated

\_\_\_\_\_

Shrish Rane

Table

	Comp. Ex. 5	Comp. Ex. 6	Comp. Ex. 7	Comp. Ex. 8
PC 1(liner PC)	69.5	59.5	59.5	61.5
PC-PDMS copolymer	15	15	15	15
(ST)				
Clay	0	10		0
Talc	0	0	10	
Wollastonite	0	0	0	8
ABS 1 (Bulk type)	8	8	8	8
PTFE	0.5			
BPADP	7			
Methyl phenyl silicone		7	7	7
F.M(MPa)	2500 (25,500	2650 ( 27000	2900 (29,600	2850 (29,000
	kg/cm <sup>2</sup> )	kg/cm <sup>2</sup> )	kg/cm <sup>2</sup> )	kg/cm <sup>2</sup> )
Notched IZOD(J/m)	75	79	60	39
UL94@0.8mm 5 bar	110	105	500	300
burn time(Sec)				
UL 94 0.8mm rating	V1	V2 not pass	V2 not pass	V2 not pass
HDT(deg.C)	103	108	110	111

Methyl phenyl silicone : TSF437  
(GETOS siloxane)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Ma, et al.	
Application No.: 10/771,589	Group Art Unit: 1714
Filed: 2/3/2004	Examiner: Peter A. Szekely
Title: Polycarbonate Compositions with Thin-Wall Flame Retardance	Confirmation No: 3810
Attorney Docket No.: GEPL.P-085	

**DECLARATION UNDER RULE 132**

The undersigned declare as follows:

1. We are the inventors of the above-captioned application, as an such are familiar with the application, including the claims thereof.

2. To further demonstrate the importance of the combination of materials recited in the claims to achieving the properties of a UL94 V0 rating at a thickness of 0.8 mm, a notched Izod impact strength or of 25 k-cm/cm or greater and a flexural modulus of 29,000 kg/cm<sup>2</sup> or greater, additional tests have been performed. These tests, as described in the Table below, provide four additional comparative examples: Comp Ex 5 which contains no mineral filler but does contain the other components, and Comp Examples 6-8 which make use of a non-phosphate flame retardant, methylphenyl silicone, which is a flame retardant used in compositions in US Patent Publication 2002/0193476, which we understand was cited by the Examiner, together with each of the three recited mineral fillers.

3. In the comparative examples using methyl phenyl silicone as a flame retardant, one additional difference is that these three examples do not include PTFE. PTFE acts in compositions of this type as an anti-drip agent. While this will have had some impact on the

UL94 rating, given the very long burn times of these three examples it would not have improved the rating to V0 as required by the claims.

4. From the examples in the specification and the declaration filed herewith, the following observations can be made:

(a) addition of a mineral filler to a composition without the PC-siloxane increases flex modulus, but significantly lowers the impact strength. No significant change in flame retardance is observed. (Comp Ex 2-4 versus Comp Ex. 1)

(b) addition of PC-siloxane to a composition containing mineral filler and phosphate flame retardant increases the flame retardance of a composition and improves the impact strength without degradation of flex modulus. (Ex 1 and 4 vs Comp Ex. 2; Ex 3 vs Comp Ex. 4)

(b) addition of PC-siloxane without mineral filler does not change the flame retardance, although the impact strength improves. (Comp Ex. 5 vs Comp Ex. 1)

(d) addition of a different flame retardant does not produce the same increase in flame retardance. (Comp Ex. 6-8).

(e) the high flex modulus that is achieved in the compositions of the invention is not achieved in compositions that use the methyl phenyl silicone flame retardant. (Ex. 1 vs Comp Ex 6, Ex. 3 vs Comp Ex. 8).

From this, it can be seen that the compositions of the invention provide a desirable combination of flex modulus, impact strength and flame retardance that is a consequence of the combination of recited materials, and which is not achieved using just some of the claimed components.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

---

dated

---

Shiping Ma

---

dated

---

Thomas Eberling

---

10/17/06

---

dated

---

Shrish Rane



Table

	Comp. Ex. 5	Comp. Ex. 6	Comp. Ex. 7	Comp. Ex. 8
PC 1(liner PC)	69.5	59.5	59.5	61.5
PC-PDMS copolymer (ST)	15	15	15	15
Clay	0	10		0
Talc	0	0	10	
Wollastonite	0	0	0	8
ABS 1 (Bulk type)	8	8	8	8
PTFE	0.5			
BPADP	7			
Methyl phenyl silicone		7	7	7
F.M(MPa)	2500 (25,500 kg/cm2)	2650 ( 27000 kg/cm2)	2900 (29,600 kg/cm2)	2850 (29,000 kg/cm2)
Notched IZOD(J/m)	75	79	60	39
UL94@0.8mm 5 bar burn time(Sec)	110	105	500	300
UL 94 0.8mm rating	V1	V2 not pass	V2 not pass	V2 not pass
HDT(deg.C)	103	108	110	111

Methyl phenyl silicone : TSF437  
(GETOS siloxane)



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Ma, et al.	
Application No.: 10/771,589	Group Art Unit: 1714
Filed: 2/3/2004	Examiner: Peter A. Szekely
Title: Polycarbonate Compositions with Thin-Wall Flame Retardance	Confirmation No: 3810
Attorney Docket No.: GEPL.P-085	

**DECLARATION UNDER RULE 132**

The undersigned declare as follows:

1. We are the inventors of the above-captioned application, as an such are familiar with the application, including the claims thereof.
2. To further demonstrate the importance of the combination of materials recited in the claims to achieving the properties of a UL94 V0 rating at a thickness of 0.8 mm, a notched Izod impact strength or of 25 k-cm/cm or greater and a flexural modulus of 29,000 kg/cm<sup>2</sup> or greater, additional tests have been performed. These tests, as described in the Table below, provide four additional comparative examples: Comp Ex 5 which contains no mineral filler but does contain the other components, and Comp Examples 6-8 which make use of a non-phosphate flame retardant, methylphenyl silicone, which is a flame retardant used in compositions in US Patent Publication 2002/0193476, which we understand was cited by the Examiner, together with each of the three recited mineral fillers.
3. In the comparative examples using methyl phenyl silicone as a flame retardant, one additional difference is that these three examples do not include PTFE. PTFE acts in compositions of this type as an anti-drip agent. While this will have had some impact on the

Table

	Comp. Ex. 5	Comp. Ex. 6	Comp. Ex. 7	Comp. Ex. 8
PC 1(liner PC)	69.5	59.5	59.5	61.5
PC-PDMS copolymer	15	15	15	15
(ST)				
Clay	0	10		0
Talc	0	0	10	
Wollastonite	0	0	0	8
ABS 1 (Bulk type)	8	8	8	8
PTFE	0.5			
BPADP	7			
Methyl phenyl silicone		7	7	7
F.M(MPa)	2500 (25,500 kg/cm2)	2650 ( 27000 kg/cm2)	2900 (29,600 kg/cm2)	2850 (29,000 kg/cm2)
Notched IZOD(J/m)	75	79	60	39
UL94@0.8mm 5 bar burn time(Sec)	110	105	500	300
UL 94 0.8mm rating	V1	V2 not pass	V2 not pass	V2 not pass
HDT(deg.C)	103	108	110	111

Methyl phenyl silicone : TSF437  
(GETOS siloxane)

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

---

dated

---

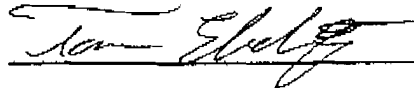
Shiping Ma

---

10/20/06

dated

---



Thomas Eberling

---

dated

---

Shrish Rane

UL94 rating, given the very long burn times of these three examples it would not have improved the rating to V0 as required by the claims.

4. From the examples in the specification and the declaration filed herewith, the following observations can be made:

- (a) addition of a mineral filler to a composition without the PC-siloxane increases flex modulus, but significantly lowers the impact strength. No significant change in flame retardance is observed. (Comp Ex 2-4 versus Comp Ex. 1)
- (b) addition of PC-siloxane to a composition containing mineral filler and phosphate flame retardant increases the flame retardance of a composition and improves the impact strength without degradation of flex modulus. (Ex 1 and 4 vs Comp Ex. 2; Ex 3 vs Comp Ex. 4)
- (b) addition of PC-siloxane without mineral filler does not change the flame retardance, although the impact strength improves. (Comp Ex. 5 vs Comp Ex. 1)
- (d) addition of a different flame retardant does not produce the same increase in flame retardance. (Comp Ex. 6-8).
- (e) the high flex modulus that is achieved in the compositions of the invention is not achieved in compositions that use the methyl phenyl silicone flame retardant. (Ex. 1 vs Comp Ex 6, Ex. 3 vs Comp Ex. 8).

From this, it can be seen that the compositions of the invention provide a desirable combination of flex modulus, impact strength and flame retardance that is a consequence of the combination of recited materials, and which is not achieved using just some of the claimed components.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are